Linxuan Zhong

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EDUCATION

Tianjin University **Tianjin, China**
M.S. in Computer Science (GPA : 3.73/4.0) *Sept. 2022 ∼ Jan. 2025 (Expected)*
- Relevant Coursework : Advanced Algorithms (90), Advanced Artificial Intelligence (92), Applied Statistics (89), Unified Modeling Language (99), Big Data Comprehensive Experiment (85)

Chongqing University **Chongqing, China**
B.S. in Computer Science (GPA : 3.74/4.0 ; Rank : 22/334) *Sept. 2018 ∼ Jun. 2022*
- Relevant Coursework : Advanced mathematics (87), Linear Algebra (90), Data Structure (94), Computer Composition Principle (93), Computer Architecture (93), Operating Systems (94), Foundation of Machine Learning (92), Deep Learning and Big Data Intelligence (89), Big Data Analysis and Processing (91), Compilers Principles (96)

RESEARCH EXPERIENCE

TianJin Key Laboratory of Advanced Networking (TANKLAB) **Tianjin University**
Graduate student, directed by Wenyu Qu, co-directed by Wenxin Li *Sept. 2022 ∼ Present*

Efficient Disaggregated Memory Eviction with Glitter *Oct. 2023 ∼ May. 2024*
Accepted, High Performance Computing and Communications (HPCC), first author
- Proposed Glitter, an adaptive, multilevel-aware eviction solution for memory disaggregation system to improve application throughput in large-scale scenarios, including an *Adaptive Eviction Threshold Adjustment Module (A-ETAM)* based on a multi-level awareness mechanism, and an *Eviction Flow Scheduling Module (EFSM)* based on a memory awareness mechanism.
  - Implemented the code for Glitter and integrated it into Fastswap, a state-of-the-art kernel-integrated disaggregated memory system. Glitter gives an average 1.4× throughput boost to Fastswap in large scale scenarios.
  - Completed all evaluation experiments as well as four motivation experiments.
  - Guided an undergraduate student to complete two motivation experiments.

JARM : Transparent, Object-Based Remote Memory System for Java Applications *Mar. 2023 ∼ Present*
Ongoing, first author
- Proposed JARM, a transparent, high-performance remote memory system based on static program analysis, including a *Remotable Object Abstraction Module*, an *Automated Code Deployment Module* and an *Application-Level Runtime Module*.
  - Implemented JARM using more than 6000 lines of Java code based on Tai-e and DISNI.
  - Compared to Fastswap, a state-of-the-art memory disaggregation system, JARM is able to reduce bandwidth overhead by 2.9×, average latency by 2.4×, and application completion time by 40% ∼ 80% with only 20% of the working set size in local memory, without modifying user code.

Key Laboratory of Dependable Service Computing in Cyber-Physical-Society (CPS-DSC) **Chongqing University**
Undergraduate research assistant, directed by Songtao Guo *Mar. 2020 ∼ Jun. 2022*

Burst IP Forwarding *Mar. 2020 ∼ Jun. 2022*
Cooperative project with Huawei
- Developed a demo system UI animation interface based on the innovative data forwarding mechanism prototype (Burst IP Forwarding) proposed by Huawei.
  - Implemented the token-based burst forwarding network on OMNET++ based on the aggregation tree topology, and analyzed its performance comparison with TCP network in the metro gate simulation scenario.
  - Collaborately proposed new optimization strategies for the token-based data transmission mechanism including a *Nearby Token Reuse Strategy* and an *Early Token Teturn Strategy*, and validated their performance improvement through simulations.

PROFESSIONAL EXPERIENCE

College of Computer Science **Chongqing University**

MIPS SOC Design and Performance Optimization, *Summer Practical Training* *Dec. 2020 ∼ Jan. 2021*
- Designed a five-stage pipelined CPU using Verilog, including modules like the *Arithmetic Logic Unit*, *Program Counter*, *Main Decoder*, *ALU Decoder*, *Instruction/Data Memory*, etc. and verified it using Vivado simulation.
  - Collaborately expanded the five-stage pipelined CPU from 10 to 57 instructions. This includes all non-floating point *MIPS I* instructions (except *LWL*, *LWR*, *SWL*, *SWR*) as well as the *ERET* instructions in *MIPS 32*. Personally, I was responsible for the implementation of 23 instructions.

CQU-Face Facial Recognition Social Platform, *Winter Practical Training* *Jun. 2020 ∼ Jul. 2020*
- Collaborately implemented a web platform based on facial recognition where users can access the system by registering and logging in, and upload a selfie in order to get an analytics report that include information such as age prediction, facial scores, and real-time mood. It also includes a social networking system with personal information display, sharing, liking, commenting, favoriting, following and more.
  - Handled the back-end development through Django framework, including face recognition API calls and functionality implementation of sharing reports, personal information pages, fan pages, and follow pages.

✱ **Hongshen Honors School** **Chongqing University**

Alzheimer's Disease Prediction and Classification, *Student Research Training Program* *Nov. 2019 ∼ Nov. 2020*

- Extracted volume features from MRI images of Alzheimer's patients using FSL and AFNI toolboxes, and standardized the data based on ICV and Z-Score.
- Constructed multiple classifiers using feed-forward neural network, convolutional neural network, support vector machine, naive bayes, k-neighbour and random forest, with their accuracy performance on the dataset analyzed and integrated them into a multi-classifier based on soft-voting.
- Conducted an importance analysis on the volume characteristics of patient brain tissue (including gray matter, white matter, and cerebrospinal fluid) based on random forest analysis.

✱ **China Center for International People-to-People Exchange** **Ministry of Education**

Flower Image Classification and Transportation Object Detection *Jul. 2019*

Artificial Intelligence Training Camp for Chinese College Students, admission rate of 9%, awarded as the team second prize (3/25).

- Individual Project : Built a convolutional neural network to achieve image recognition of 16 flower species and built a *Fast-R-CNN* to achieve facial detection tasks using Pytorch.
- Team Project : Built a *Yolo-v3* to filter, classify, and capture bounding boxes for massive images featuring buses, cars, ships, and airplanes. Personally, I was responsible for labeling original images using LabelImg, image augmentation for training data and model tuning.

VOLUNTEERING

The 23rd International Conference on Algorithms and Architectures for Parallel Processing (ICA3PP 2023)

Tianjin, China, 20-22 Oct. 2023

- Responsible for the development and maintenance of the Official Conference Website, including *Home* page, *Author* page, *Workshop* page, *Program* page and *Keynote* page.
- Responsible for scheduling and organizing the Conference Program.
- Served as a conference volunteer for material preparation (design and production of conference credentials, conference manuals, etc.), registration of participants, and coordination of expert transportation.

AWARDS

- Academic Scholarship, Second Prize, Tianjin University. *Oct. 2022*
- Comprehensive Scholarship, Third Prize, Top 14%, Chongqing University. *Dec. 2020*
- Comprehensive Scholarship, Second Prize, Top 8%, Chongqing University. *Dec. 2019*
- National University Student Artificial Intelligence Training Camp, Team Second Prize, China. *Jul. 2019*
- Comprehensive Scholarship, Second Prize, Top 8%, Chongqing University. *Apr. 2019*
- Mathematical Modeling Challenge Cup, Third Prize, Chongqing University. *Apr. 2019*
- Social Practice in Winter Vacation, Excellent Award, Team Leader, Chongqing University. *Mar. 2019*

SKILLS

- **Programming Language :** Python, C++/C, Java, Verilog, HTML/CSS/JavaScript, Matlab
- **Deep Learning Frameworks :** Tensorflow, Pytorch, Keras
- **Network Simulator :** OMNET++, NS-3, YAPS
- **System and Tools :** Linux, RDMA, Docker, Cloudlab, Git, LaTeX